03050110-010
(Congaree River)

General Description

Watershed 03050110-010 is located in Richland, Lexington, and Calhoun Counties and consists primarily of the *Congaree River* and its tributaries from its origin to Cedar Creek. The watershed occupies 140,217 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Lakeland-Chewacla-Congaree-Blaney-Fuquay series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 5%, with a range of 0-15%. Land use/land cover in the watershed includes: 9.45% urban land, 7.24% agricultural land, 2.22% scrub/shrub land, 0.09% barren land, 61.76% forested land, 16.45% forested wetland (swamp), and 2.79% water.

The Congaree River originates with the confluence of the Saluda River Basin and the Broad River Basin in the City of Columbia. There are a total of 260.6 stream miles in this watershed, all classified FW. Rocky Branch flows into the Congaree River within the City of Columbia, followed by the Congaree Creek watershed (03050110-020), Dry Creek, and the Gills Creek watershed (03050110-030). Further downstream, Toms Branch (Silver Lake, Geiger Pond), Big Lake (Cow Cut), and Savany Hunt Creek enter the river. The river then accepts drainage from the Sandy Run watershed (03050110-040) and Mill Creek (Reeder Point Branch, Black Lake, Adams Pond, Pinewood Lake, Ulmers Pond, Sunset Lake, Twin Lakes). Big Beaver Creek accepts drainage from Rock Branch, Branham Branch, Little Beaver Creek (Howell Branch, Falls Branch), and Congaree Spring Branch (Hildebrand Branch) before flowing into the Congaree River. Butlers Gut Creek connects Big Beaver Creek to Buyck Bottom Creek (Sikes Creek) and to the river. Bates Mill Creek (High Hill Creek, Speigner Branch, Dicks Swamp) drains into the river at the base of the watershed. There are numerous recreational lakes and river oxbows in this watershed such as Saylors Lake and Dead River. Another natural resource in the watershed is the Congaree River Swamp National Monument, a wetland preserve, which extends along the northeastern river bank in the lower portion of the watershed.

Water Quality

Station #	Type	Class	Description
CSB-001L	P	FW	CONGAREE RIVER AT BLOSSOM ST (SALUDA RIVER)
CSB-001R	P	FW	CONGAREE RIVER AT BLOSSOM ST (BROAD RIVER)
C-021	S	FW	MILL CREEK AT SC 262
C-022	S	FW	MILL CREEK AT US 76 AT PINEWOOD LAKE, 8 MI SE OF COLA
C-074	P	FW	CONGAREE R-W BOUNDARY OF CONGAREE SWP NATL MON
C-010	BIO	FW	BIG BEAVER CREEK AT US 176
C-577	BIO	FW	BATES MILL CREEK AT R 24
C-073	S	FW	REEDER POINT BRANCH AT SC 48

***Congaree River* - There are three monitoring sites along this section of the Congaree River, which was Class B until April, 1992. At the upstream site, reflecting Saluda River influence (CSB-001L), aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a high concentration of zinc measured in both 1995 and 1996. In addition, there was a very high concentration of cadmium and chromium measured in 1995, and a significant decreasing trend in dissolved oxygen concentration. In sediments, a very high concentration of copper was measured in 1994, and very high concentrations of zinc were measured in 1993 and 1994. Isophorone was detected in the 1995 sediment sample and P,P'DDE, a metabolite of DDT, and O,P'DDT were detected in the 1994 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment.**

Significant decreasing trends in total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters.

Across the channel at the site reflecting Broad River influence (CSB-001R), aquatic life uses are again not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a very high concentration of zinc measured in both 1996 and 1997. In addition, there are significant decreasing trends in dissolved oxygen concentration and pH. Methylene chloride was detected in the water column in 1997. Benzo(a)pyrene, chrysene, fluoranthene, phenanthrene, pyrene, and benzo(a)anthracene (all polycyclic aromatic hydrocarbons) were detected in the 1994 sediment sample. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. At the downstream site (C-074), aquatic life uses are fully supported, but there was a very high concentration of chromium measured in 1997. Recreational uses are fully supported at all sites.

***Mill Creek* - There are two monitoring sites along Mill Creek. At the upstream site (C-021), aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions. At the downstream site (C-022), aquatic life and recreational uses are fully supported. This is a blackwater system, and often characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted at both sites, they were typical of values seen in such systems. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations at both sites suggest improving conditions for these parameters.**

***Reeder Point Branch (C-073)* - This stream was Class B until April, 1992. Aquatic life uses are partially supported due to dissolved oxygen excursions. This is a secondary monitoring station and sampling is intentionally biased towards periods with the potential for low dissolved oxygen concentrations. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. The dissolved oxygen excursions were typical of values seen in such systems. Recreational uses are not supported due to fecal coliform bacteria excursions.**

***Big Beaver Creek (C-010)* - Aquatic life uses are fully supported based on macroinvertebrate community data.**

***Bates Mill Creek (C-577)* - Aquatic life uses are fully supported based on macroinvertebrate community data.**

Permitted Activities

Point Source Contributions

RECEIVING STREAM	*NPDES#*
FACILITY NAME	*TYPE*
PERMITTED FLOW @ PIPE (MGD)	*LIMITATION*
COMMENT	
CONGAREE RIVER	SC0001058
MARTIN MARIETTA AGGREGATES/CAYCE QUARRY	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT

CONGAREE RIVER **SC0001333**
CAROLINA EASTMAN CO. **MAJOR INDUSTRIAL**
PIPE #: 001 FLOW: 100.82 **EFFLUENT**

CONGAREE RIVER **SC0001848**
WESTINGHOUSE ELECTRIC CORP. **MAJOR INDUSTRIAL**
PIPE #: 001 FLOW: 0.128 **EFFLUENT**

CONGAREE RIVER **SC0002062**
SCE&G/COLUMBIA HYDRO PLANT **MINOR INDUSTRIAL**
PIPE #: 001 FLOW: 0.0058 **EFFLUENT**

CONGAREE RIVER **SC0020940**
CITY OF COLUMBIA/METRO PLANT **MAJOR MUNICIPAL**
PIPE #: 001 FLOW: 60.00 **WATER QUALITY**
WQL FOR NH3-N, DO, TRC

CONGAREE RIVER **SC0024147**
CITY OF CAYCE/MAIN PLT **MAJOR MUNICIPAL**
PIPE #: 001 FLOW: 12.0 **WATER QUALITY**
WQL FOR NH3-N, DO, TRC

CONGAREE RIVER **SC0033367**
TEEPAK INC./CORIA DIV. **MINOR INDUSTRIAL**
PIPE #: 001 FLOW: 0.378 **EFFLUENT**

CONGAREE RIVER **SC0038865**
EAST RICHLAND COUNTY PSD/GILLS CK PLT **MAJOR MUNICIPAL**
PIPE #: 001 FLOW: 10.5 **WATER QUALITY**
PIPE #: 001 FLOW: 14.0 (PROPOSED) **WATER QUALITY**
WQL FOR NH3-N, DO, TRC

CONGAREE RIVER **SCG641005**
CITY OF WEST COLUMBIA/WATER PLANT **MINOR DOMESTIC**
PIPE #: 001 FLOW: M/R **EFFLUENT**

CONGAREE RIVER **SC0041386**
SC DEPT. AGRIC./METEOROLOGICAL STATION **MINOR INDUSTRIAL**
PIPE #: 001 FLOW: M/R **EFFLUENT**

CONGAREE RIVER **SC0044814**
SCE&G/COIT GAS TURBINE **MINOR INDUSTRIAL**
PIPE #: 001 FLOW: ---- **EFFLUENT**

CONGAREE RIVER TRIBUTARY **SCG830007**
CHEVRON USA, INC./CAYCE **MINOR INDUSTRIAL**
PIPE #: 001 FLOW: ---- **WATER QUALITY**
WQL FOR BOD5, TOXICS

DRY CREEK **SC0031178**
BROOKFOREST MH EST. **MINOR DOMESTIC**
PIPE #: 001 FLOW: 0.027 **WATER QUALITY**
WQL FOR TRC

DRY CREEK TRIBUTARY **SC0030988**
BELLE MEADE SD WWTP **MINOR DOMESTIC**
PIPE #: 001 FLOW: 0.08 **WATER QUALITY**
WQL FOR NH3-N, DO, TRC

DRY CREEK TRIBUTARY **SC0031402**

LLOYDWOOD SD/PINEY GROVE UTIL. **PIPE #: 001 FLOW: 0.1548** **WQL FOR NH3-N, TRC**	**MINOR DOMESTIC** **WATER QUALITY**
ROCKY BRANCH **TARMAC MID-ATLANTIC** **PIPE #: 001 FLOW: M/R** **PIPE #: 002 FLOW: M/R**	**SCG730054** **MINOR INDUSTRIAL** **EFFLUENT** **EFFLUENT**
TOMS BRANCH **SILVER LAKE MHP** **PIPE #: 001 FLOW: 0.038**	**SC0031321** **MINOR DOMESTIC** **EFFLUENT**
TOMS BRANCH **ROLLING MEADOWS MHP** **PIPE #: 001 FLOW: 0.0715** **WQL FOR NH3-N**	**SC0033685** **MINOR DOMESTIC** **WATER QUALITY**
SAVANY HUNT CREEK **SC HWY DEPT/I-26 REST AREA** **PIPE #: 001 FLOW: 0.06**	**SC0040339** **MINOR DOMESTIC** **EFFLUENT**
MILL CREEK **CHARLES TOWNE SD/UTILITY** **PIPE #: 001 FLOW: 0.166** **WQL FOR NH3-N, DO, TRC, BOD5**	**SC0032760** **MINOR DOMESTIC** **WATER QUALITY**
REEDER POINT BRANCH **STARLITE SD/TERRACEWAY** **PIPE #: 001 FLOW: 0.8** **WQL FOR NH3-N, DO, TRC**	**SC0030911** **MINOR DOMESTIC** **WATER QUALITY**
REEDER POINT BRANCH **SC TRACTOR & EQUIPMENT** **PIPE #: 001 FLOW: ----**	**SC0038024** **MINOR INDUSTRIAL** **EFFLUENT**
LAND APPLICATION ***FACILITY NAME***	***PERMIT #*** ***TYPE***
SLUDGE INJECTION **BIO TECH, INC.**	**ND0069761** **MINOR COMMUNITY**

Nonpoint Source Contributions

Mill Creek Watershed Assessment

This project is an assessment of water quality in the Mill Creek watershed and is being implemented by the University of South Carolina. The purpose of the study is to quantify relationships among rainfall, runoff, and pollutant transport (sediment, nutrients, and fecal coliform bacteria). The data will identify sources of pollutants, conditions causing water quality degradation, and recommend management actions to remediate problems. A long term objective is to develop process-oriented simulation models used for the purpose of predicting NPS runoff impacts and their impact on land use practices. The project commenced in August of 1996 and is scheduled to be completed by August of 1999.

Landfill Activities

SOLID WASTE LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
FORT JACKSON **DOMESTIC**	**DWP-098** **CLOSED**

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
ASHMOORE BROTHERS, INC. **418 SAND PIT**	**0883-30** **SAND**
LANIER CONSTRUCTION CO., INC. **LANIER ASPHALT PLANT**	**0124-32** **SAND**
LANIER CONSTRUCTION CO., INC. **STROUD PIT**	**0946-32** **SAND**
FOSTER-DIXIANA SAND COMPANY **SILICA PIT**	**0141-32** **SAND**
FOSTER-DIXIANA SAND COMPANY **DIXIANA MINE**	**0140-32** **SAND**
TARMAC CAROLINAS, INC. **COLUMBIA QUARRY**	**0133-40** **GRANITE**
MARTIN MARIETTA AGGREGATES **CAYCE QUARRY**	**0102-32** **GRANITE**
GUIGNARD BRICK WORKS, INC. **ROOF MINE**	**0422-09** **KAOLIN**

Water Supply

WATER USER (TYPE) *WATERBODY*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (GPM)*
CAROLINA EASTMAN CO. (I) **CONGAREE RIVER**	**181.44** **126,000**

Groundwater Concerns

The groundwater in the vicinity of the spray irrigation field and surface impoundments owned by Carolina Eastman Co. is contaminated with nitrates and other substances. The groundwater Mixing Zone has been approved, and the Department is in the process of issuing the written portion of the approval. The surface water affected by the groundwater contamination is the Congaree River. Also affecting the Congaree River is the groundwater in the vicinity of the surface impoundments owned by Teepak, which is also contaminated with nitrates. The facility is currently in the assessment phase.

The groundwater in the vicinity of the property owned by Westinghouse Nuclear Fuel Division is contaminated with nitrates, fluoride, and volatile organics from spills, leaks, and unknown sources. The facility is currently in the remediation phase. The surface waters affected by the groundwater contamination are Sunset Lake and the unnamed tributaries and wetlands draining into Mill Creek.

Growth Potential

There is a low to moderate potential for residential and industrial growth in the Olympia area of the City of Columbia, and high growth and development is projected for the Congaree Vista area in the downtown area. The Three Rivers Greenway will increase recreational use in this area. Growth is also projected along the newly connected I-77 beltway around the city. The Olympia and Bluff Road areas contain heavy industrial development. Only the upper portion of the watershed, near the City of Columbia, has available water and sewer service. The Cities of West Columbia and Cayce are also located in this watershed. There are plans to extend water and sewer facilities capable of handling industrial development within the next five to ten years. The area around Silver Lake is expected to undergo substantial residential and industrial development. The area south of the City of Cayce, along I-26 and US 321, and the Bluff Road/Shop Road area in Columbia are expected to experience heavy growth. The area along US 176 and US 21 should experience moderate growth, primarily industrial.